



# **FS-4/FS-4Pro Portable DTE Recorder**



**Release 1.0**

## **User Guide**

**Part Number: MANL-0954-01**

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## Introduction

FireStore FS-4 and FS-4Pro<sup>1</sup> are the first portable DV disk recorders with Direct To Edit (DTE) technology designed for hand held camcorders in a small, rugged and shock proof chassis.

If you edit with applications from Adobe, Apple, Avid, Canopus, Matrox, Pinnacle, Sonic Foundry, Ulead, and many others, FireStore's DTE Technology is the only solution that can save you up to 25 hours a month by recording clips to disk in your NLE's native file format.

## What is DTE Technology?

A DTE Disk recorder is a stand-alone device that records DV25 video to a disk drive in NLE native file formats. When the disk drive is connected to a computer, clips are immediately available for editing. This eliminates the need to capture, transfer or convert the clips prior to editing.

## Features

The FS-4 and FS-4Pro offer the following:

- **Tapeless acquisition** - Record directly from your camcorder while you shoot using Direct To Edit (DTE) Technology. When you are finished shooting, connect the FS-4 to your computer and you are instantly ready to edit in the timeline.
- **True DTE Technology** - Files are recorded to disk as RawDV, AVI Type 1, AVI Type 2, 24P AVI Type 2, Matrox AVI, Canopus AVI, QuickTime or QuickTime 24P.
- **Fast and Efficient Editing** - Once you have finished shooting, you can mount the FS-4 to your Mac or PC editing system like a normal FireWire hard disk drive. Transfer clips to your NLE's media drive at up to 400 Mbps or edit instantly in real-time using the FS-4 as your media source.
- **Confidence in Recording** - Simultaneously record to disk and tape while you shoot, providing an immediately available, drop out free, edit source and an archive and backup on tape.
- **Compact, Lightweight, Rugged Design** - The FireStore FS-4 weighs less than one pound including the battery and is only 1.5" thick. You can mount the FS-4 directly to your camcorder using

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1. In this manual, when the FS-4 is indicated, it means FS-4 and FS-4Pro unless specifically indicated.

the optional camera mount kit, or clip the FS-4 directly to your belt. The FS-4 can withstand the rigors of field shooting. The six second electronic shock cache ensures your video is always recorded even in the roughest of conditions.

- **Flexible Capacities and Power** - The FS-4 comes with a 40GB (about 3 hours) hard drive. Extend record times by linking two FS-4 units together. Power the FS-4 using slim, removable battery packs or power it using the supplied AC adapter.
- **Easy to Use, Control and Update** - The FS-4 interfaces with your camcorder using a single FireWire cable that passes audio, video, timecode and control information. When a tape is present, each press of start and stop on your camcorder's record button creates an individual clip on disk. The FS-4 features a comprehensive backlit display, menu system and buttons allowing easy control and management. These units are upgradeable in the field.
- **Never Miss A Shot** - FireStore FS-4's six second retro record mode means you are always recording. When action happens, you know up to six seconds prior to the event occurring is saved in your clip.

The **FS-4Pro** also provides the following:

- Retro Disk and Loop Record modes.
- Scene Marking which allows clips to be categorized into pre-named folders on disk while you shoot.
- User definable 10-second retro record feature.
- User definable time lapse and loop playback modes.
- Pinnacle AVI and Avid DV-OMF support.
- Available with either 40GB or 80GB (about 6 hour) capacities.
- Free Run and Regen timecode modes.

## Unpacking

Before using the FS-4, open the package and make sure you have **all** of the following items:

- FS-4 unit
- Power supply with cable and connector to the FS-4
- Removable power supply cable for wall outlet to power supply (International only)
- Belt Clip
- Four foot long, 6-pin to 4-pin Firewire Cable
- User Guide
- Removable Li-Ion Battery Pack

## Quickstart

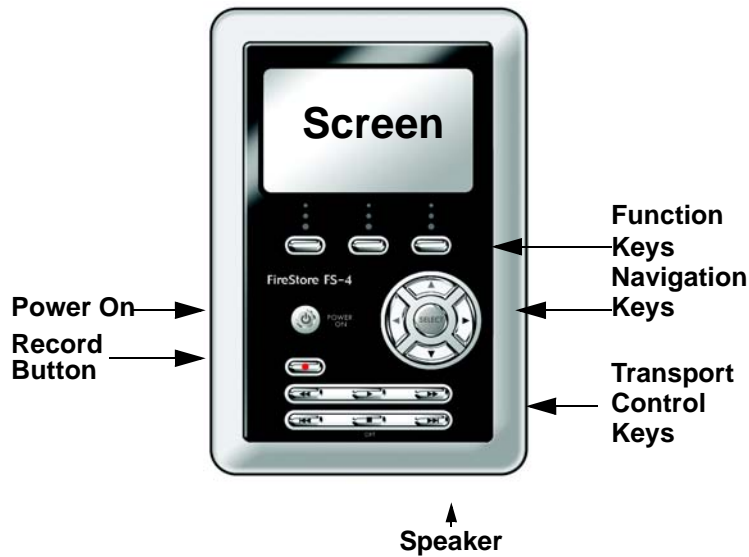
This section contains information to help you to use the FS-4 as quickly as possible. It contains the following sections:

- Physical Description and Basic Controls
- The FS-4 Menu System
- Installing and Removing the Battery Pack
- Connect the FS-4 to AC Power
- Connect the FS-4 to a DV Camcorder
- Recording and Playback with the FS-4
- Power “On” the FS-4
- Set the Time and Date
- Select a DV File Format
- Recording With FS-4
- Manual Recording
- Syncro Slave Recording
- Playback on the FS-4

## Physical Description and Basic Controls

### Front Panel Controls

The front panel of the FS-4 is illustrated below.



### **Screen**

This is a 14 character by 7 line dot matrix, backlit, LCD display.

### **Function Keys**

Function A (left), Function B (Center), Function C (Right)

The three keys below the FS-4 LCD display are user-defined function keys for selecting items on the bottom-most LCD line. The function of these soft keys changes depending upon what is displayed on the screen above the particular key. Refer to the "Functions Screen" on page 42 for more information.

### **Power On Key**

To power on or reset the FS-4 after it is powered on, hold down this key for two seconds.



To power off the FS-4, hold down the stop key (n) for three seconds. During power off, the FS-4 makes an audible beep indicating it is turning off.

### ***Navigation Keys***

These keys enable you to navigate the FS-4 menu. The navigation keys include **Left**, **Right**, **Up**, **Down**, and **Select**. **Left**, **Right**, **Up**, and **Down** keys repeat.

### ***Transport Control Keys***

Use these keys to control FS-4 playback and record functions. You usually operate these transport keys while on the HOME Screen.

*Top Row:*

Record Key ●

Press this key once when the FS-4 is in STOP mode to put the FS-4 into REC-PAUSE. Press it again to start recording. If you press the REC button during a recording, the current clip is closed and a new clip is created without dropping any frames. This key is the only key that has a red legend on the front panel.

*Middle Row:*

Back Search Key ◀◀

Press this key to play video at speeds different than real-time. Refer to the NOTE below.

Play Key ▶

Press this key to start playback of the selected clip.

Forward Search Key ▶▶

Press this button to play video at speeds different than real-time.

**NOTE:** Pressing the Fast Forward (FF) Search key multiple times results in increases in the search speed. This mode is bidirectional. For instance, if you are in 10X FF speed and you press the Back Search key once, the FS-4 is now in 2X FF mode. This applies as well for backward search speeds. The default speed resolution is as follows (NTSC, PAL have slightly different multiples for < 1X):

- Reverse: -30X, -10X, -2X, -1X (reverse play), -1/2X(-15fps), Still.
- Forward: Still, +1/2X (+15fps), +1X (play), +2X, +10X, +30X

### *Bottom Row*

#### Back Index Key |◀◀

This key returns the FS-4 to the beginning of the current clip when in playback mode. Press this button twice in sequence to return the FS-4 to the previous clip during playback. In STOP mode, press this key to return the FS-4 to the beginning of the previous clip.

#### Stop Key ■

While in the Home Screen, and in any transport mode, press this key to Pause the FS-4. Press it again to stop the FS-4. Refer to the section, “Setup Screen” on page 37 for more information.

**NOTE:** To power off the FS-4, hold down the stop key (■) for three seconds. During power off, the FS-4 makes an audible beep indicating it is turning off.

#### Forward Index Key ▶▶|

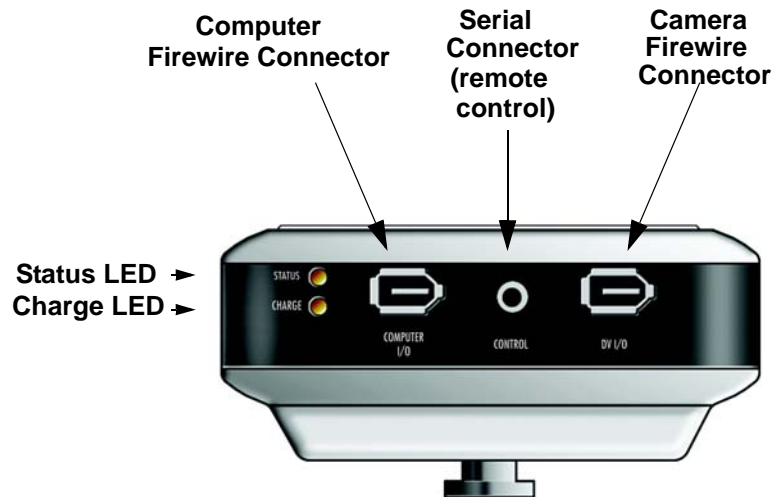
Use this key to skip forward to the next clip in STOP and PLAY modes.

### ***Internal Speaker***

The Internal speaker is used for alarms and audible feedback. You can disable audible feedback in the Settings menu if desired. The power, temperature, and disk capacity alarms are always active.

## Top Panel

The top panel contains the following connectors and LEDs:



### **States of Charge LED**

- Off No Charger Connected
- Green Fast Charge Mode
- Yellow Float Charge Mode
- Red Charger Error
- Red/Yellow No battery installed / battery error
- Yellow Blink Charger voltage insufficient

### **States of Status LED**

- Off Power Off Mode
- Green Power On Mode - On, but no activity.
- Yellow Playback (Blinks when the Hard drive is being accessed.
- Red Record Mode
- Blinking Red Record Pause

### **Computer FireWire Connector**

- In/Out: 6-pin IEEE-1394a port x 1
- Asynchronous Data I/O

### ***Serial Connector***

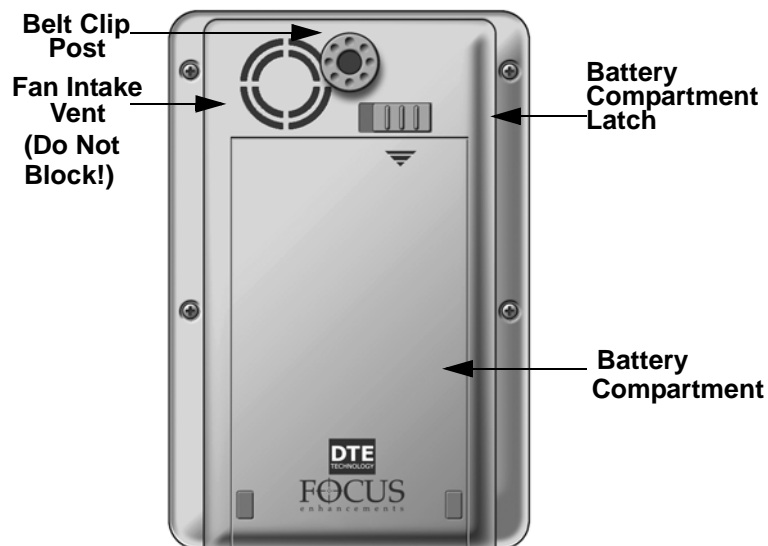
GPI / RS232C; 3.5mm TRS mini jack. (3.5mm to DB-9 cable accessory available). Switchable to act as a simple contact closure or RS-232C port. You can also connect an optional wired remote commander.

### ***Camera FireWire Connector***

- DV Video I/O
- 6-pin IEEE-1394a connector
- Isochronous 25Mb/s DV video I/O
- Embedded 2-ch (48kHz, 16-bit) or 4-ch (12-bit, 32kHz) audio

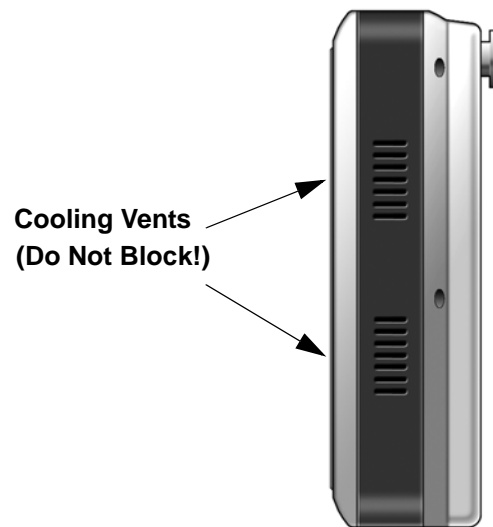
### **Rear Panel**

The rear panel contains the following important items:



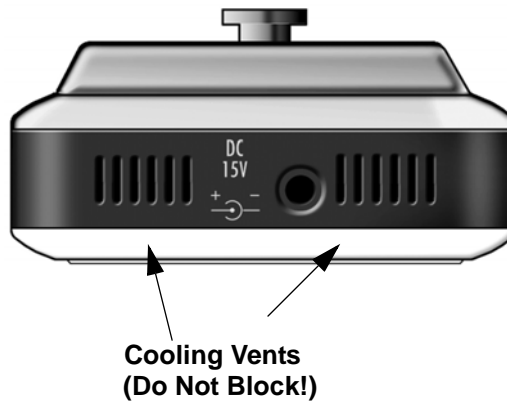
### Side Panel

The side panel contains cooling vents as illustrated below.



### Bottom Panel

The FS-4 bottom panel features a single 2-pin DC power connector. Connect the supplied AC power adapter here.



## The FS-4 Menu System

The FS-4 menu system provides an easy way to perform the functions available in the unit. Each of the screens below (except the Welcome Screen and the Home Screen which come up automatically when you start the unit) can be accessed by repeatedly pressing the **Left** or **Right** navigation keys. The functions of each of the selections on these screens is explained in more detail in "FireStore Functions" on page 28.

**NOTE:** To get to the top of any menu, press the **Left** key. To get back to the Home Screen, press the **Select** Key.

**Welcome Screen** - only appears for several seconds upon power up.

**Home Screen** - starting screen for all functions. Displays disk and operational status.

**Control Screen** - contains the following selections: Local, Tapeless, AV/C, Synchro Slave

**Play Screen** - contains the following selections: Play Clip, Loop Clip, Loop All, Play All

**Utilities Screen** - contains the following selections: Delete Clip, Format, Repair Disk, Repair Clip, File Name, and Upgrade. The **FS-4Pro** provides the following additional functions: Organize Reel, Organize OMF, and Organize Pinnacle

**Functions Screen** - contains user definable function key selections. Changing a setting with a Function key is identical to changing the setting in its corresponding menu. Refer to "Functions Screen" on page 42 for more information.

**Setup Screen** - contains the selections for the FS-4 LCD, Alarm, Stop Output, GPI Control Options, Timecode, and LCD Control Settings.

**DV Formats Screen** - contains the following selections: Raw DV, AVI Type 1, AVI Type 2, Canopus AVI, Matrox AVI, Quicktime, Quicktime 24P, 24P AVI Type 2. The **FS-4Pro** provides Pinnacle AVI and Avid OMF.

**HDD Mode Screen** - contains the following selections: DV Recorder, DD Drive, and Use Ext. FS-4.

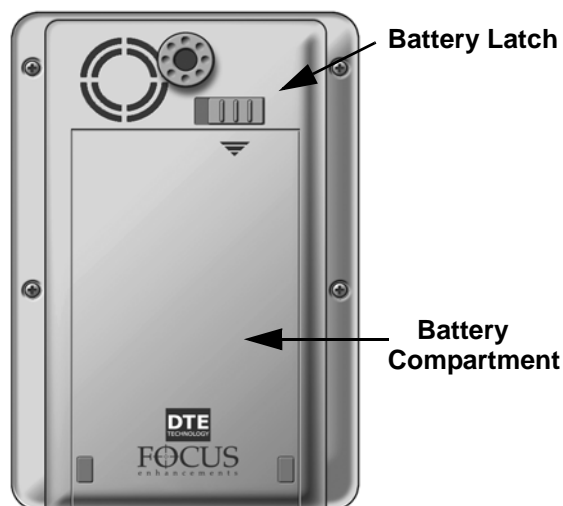
**Record Screen** - contains the following selections: Normal Record and Retro Cache Record. The **FS-4Pro** also contains Retro Disk Record and Loop Record.

**Reels Screen** (FS-4Pro only) - allows selected clips to be marked for placement in particular Reels Folders.

## Installing and Removing the Battery Pack

Before operating the FS-4, install the battery as follows:

Step 1: Turn the FS-4 unit over, so that the back is facing you as shown in the following illustration.



Step 2: Slide the battery pack into the compartment. Make sure the contacts on the side meet the contacts on the inside of the unit.

Step 3: Make sure the battery latch clicks into place.

You can immediately use the FS-4 unit if you attach the AC power cord with or without the battery pack installed.

You must charge the battery until the battery status LED indicates the unit is charged before you can use the FS-4 with the battery. The Charge LED on the top of the FS-4 lights to show the battery is charging. A flat battery on charge will take 2-3 hours to charge with the unit powered off.

The included battery will supply power to the FS-4 for about 90 minutes while in continuous Record or Playback mode.

To remove the battery, use the following steps:

- Step 1: Slide the battery latch to the left and slide downward on the battery pack about 1cm or 3/8.
- Step 2: Remove the battery pack.

## Connect the FS-4 to AC Power

You can use the FS-4 immediately after you install the battery using AC power.

**NOTE:** You can use the FS-4 without a battery installed.

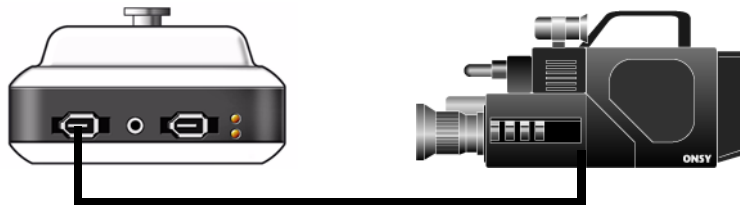
To do this, connect the AC power as follows:

- Step 1: Plug the cord from the power supply into the bottom of the FS-4.
- Step 2: Connect the line cord to the rectangular power supply (International models only).
- Step 3: Plug the line cord or AC adapter into an electric outlet.

## Connect the FS-4 to a DV Camcorder

Before performing this procedure, make sure you have performed “Installing and Removing the Battery Pack” on page 11 and/or “Connect the FS-4 to AC Power” on page 12.

- Step 1: Connect the supplied Firewire cable to the “DV I/O” connector on the top of the FS-4. (Only one end will match the plug in the FS-4.)



- Step 2: Locate the FireWire/DV/iLink (or similar) connector on your video camera. It is located in different places depending upon the brand of camera. If you are unclear of its location, consult your video camera manual.
- Step 3: Connect the other end of the FireWire cable to your video camera.
- Step 4: Turn on the video camera.
- Step 5: Turn on the FS-4.



## Recording and Playback with the FS-4

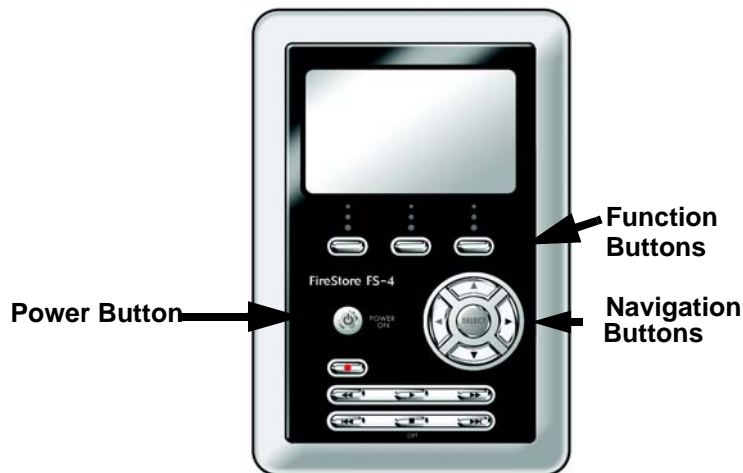
Before using the FS-4, you must prepare it by performing the following procedures:

- Power “On” the FS-4
- Set the Time and Date
- Select a DV File Format
- Recording With FS-4
- Manual Recording
- Syncro Slave Recording
- Playback on the FS-4

The values you select with these procedures will remain the same during power cycles and will not change unless you specifically change them.

### Power “On” the FS-4

Step 1: Press the power button for two seconds and release it.



Step 2: Wait for the following Welcome screen to appear.



This Welcome screen appears as the unit initializes. You are ready to proceed when the Home screen (shown below) appears.



## Set the Time and Date

After you have powered on the FS-4, set the time and date as follows:

Step 1: Press the **Right** navigation key several times until the Setup Screen appears on the screen as shown below:



Step 2: Use the **Down** navigation key to highlight the date and press the **Right** navigation key to highlight the date. The highlighted item is the one currently selected. The following screen appears:



- Step 3: Use the **Up** and **Down** navigation keys to change the highlighted value. Use the **Right** and **Left** navigation keys to highlight the Month, Day, and Year.
- Step 4: When complete, press the right-most Function Key indicated as BACK on the screen. The new date will be indicated on the Setup Screen.
- Step 5: Use the **Down** navigation key to select the time and press the **Right** navigation key. The following screen appears:



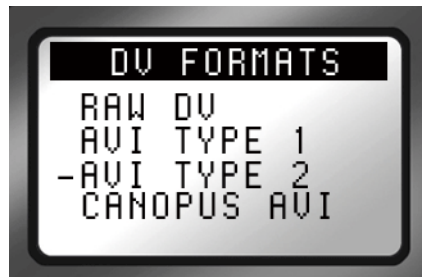
- Step 6: Use the **Up** and **Down** navigation keys to change the highlighted value. Use the **Right** and **Left** navigation keys to highlight the Hour, Minute, and Second. (Time is indicated in 24hr. mode.)
- Step 7: Press the right-most Function Key indicated as BACK on the screen. The new date will be indicated on the Setup Screen.
- The Time and Date are now set.
- Step 8: Press the **Left** Navigation key to return to the beginning screen.

For more information on the Setup function, refer to the section, "Setup Screen" on page 37.

## Select a DV File Format

After setting the time and date, but before recording, you should set the DV file format as follows:

- Step 1: Press the **Right** navigation key several times until the DV Formats Screen appears on the screen as shown below:



For a complete and up-to-date list of supported applications and their associated formats, visit the website:  
<http://www.firestore.com>

- Step 2: Use the **Up** and **Down** navigation keys to select the required DV file format that supports your NLE system. The dash on the left side of the selection indicates the current selection. The default value is AVI Type 2.
- Step 3: Press the center **Select** button on the navigation keys.

**NOTE:** 24p modes are only for use with camcorder's that are capable of DV-24p Advanced mode.

## Recording With FS-4

Recording with the FS-4 consists of the following activities:

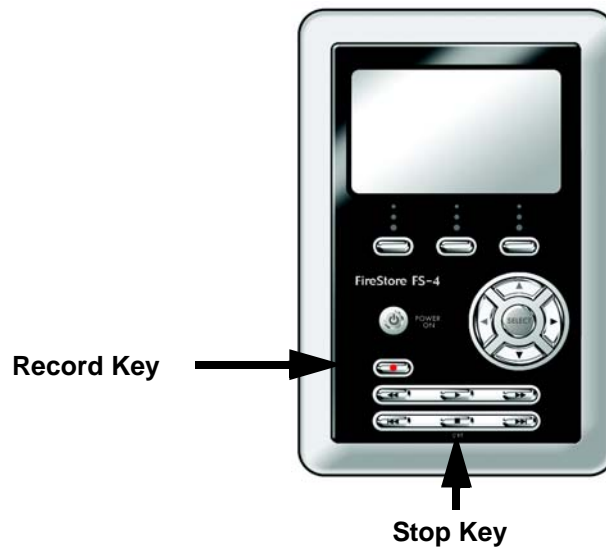
- Manual Recording
- Syncro Slave Recording or Tapeless Recording

In all cases, make sure that you have set the time and date, set the recording format as explained above and connected the FS-4 to your video camera as explained in "Connect the FS-4 to a DV Camcorder" on page 12.

## Manual Recording

Before recording, make sure both the video camera and the FS-4 are powered on and connected with the FireWire cable.

- Step 1: Set your video camera to “Camera” or “Cam” mode. Make sure you can see an image through the viewfinder.
- Step 2: On the FS-4, press the **Record** key. This sets the FS-4 to RECORD-PAUSE mode.



- Step 3: On the FS-4, press the **Record** key a second time. The FS-4 begins to record. The timecode value is displayed on the screen.
- Step 4: Press the **Stop** key to put the FS-4 into RECORD-PAUSE mode.
- Step 5: Press the **Record** key, the FS-4 begins to record again on the same clip.
- Step 6: Press the **Stop** key *twice* to stop the recording.
- Step 7: Press the **Record** key again to begin recording a new clip.

When in Record mode if you want to break the recording into a new, separate file without dropping frames, press **Record** and a new clip is automatically created.

**CAUTION:** Never disconnect the power or the FireWire cable during a recording. This will cause file corruption.

## Syncro Slave Recording

Syncro slave recording allows you to control FS-4 operation completely from the video camera.

Make sure the FS-4 is in STOP mode and that the video camera and the FS-4 are connected. Also make sure that a video tape is in the camera unless your camera supports tapeless recording. If it does support tapeless recording, refer to the section, "Setup Screen" on page 37.

- Step 1: From the FS-4 Home screen, press the **Right** navigation key several times until the Control Screen appears on the screen as shown below:



- Step 2: Use the **Down** navigation key to select Syncro Slave. The dash on the left side of the selection indicates the current selection. The default value is Local.
- Step 3: Press the center **Select** button on the navigation keys. The beginning screen returns and a Pause indicator appears in the upper left-hand corner of the FS-4 screen. Next to this symbol, is a "Y" indicating that control for both units is from the video camera.
- Step 4: You can now use the video camera record controls and the FS-4 will respond to these controls. The recording signal goes both to the tape in the camera and to the FS-4.

**NOTE:** By selecting EXT TC in the Setup menu, you can record the camcorder's Timecode in the file.

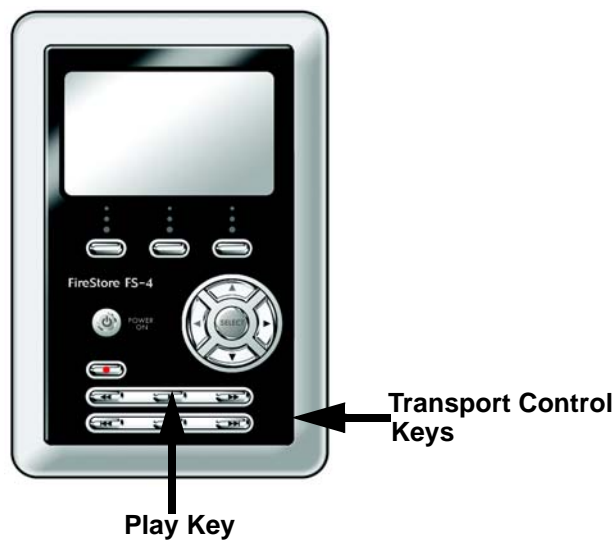
**NOTE:** You can also perform these tasks using customized function keys. For information on setting up function keys, refer to the section, "Functions Screen" on page 42

## Playback on the FS-4

Before playing back a recording, you must have first recorded something. Also, make sure both the video camera and the FS-4 are powered on and connected together with the FireWire cable.

**NOTE:** This feature may not be available on PAL cameras.

- Step 1: Set your video camera to “VCR” or “playback” mode.
- Step 1: Navigate to the clip you want to preview by using the bottom **Left** and **Right** transport control keys.



- Step 2: On the FS-4, press the **Play** key.
- Step 3: Press the Fast Forward or Fast Backward key as required. Refer to “Quickstart” on page 3 for more information on the function of these keys.

## Using the FS-4 with a Computer

Once you have recorded FS-4 clips to a FireWire disk drive using FireStore, you can use those clips in most computer based DV NLE systems.

Traditionally, in order to get footage into an NLE system, it was necessary to capture or digitize that footage utilizing a video capture card. Using the FS-4 recorded clips, you can skip this capture stage by just connecting the FS-4 to your computer with an OHCI compliant IEEE-

1394 (FireWire) port using the HDD Bypass mode (refer to page 2-15 for more information).

The FS-4 can be connected to any computer system that will read a FAT 32 volume. This includes Windows 98SE/ME/2000/XP and Mac OS9/OS10. FAT32 volumes will not work with Windows NT.

Check the FOCUS Enhancements' website ([www.FOCUSinfo.com](http://www.FOCUSinfo.com)) for more compatibility information.

In order to use the FS-4 with a computer, you must have an active IEEE-1394 connection on your computer. You also must have loaded any required FireWire disk drive drivers onto your computer system.

Use the MODE screen to go into HDD mode. This step is required before mounting the FS-4 to your computer. Refer to the section, "HDD Mode Screen" on page 34

Connect the FS-4 to your computer system utilizing a standard 6-pin to 6-pin FireWire cable and connect power to the drive if necessary (some FireWire disk drives receive power from the computer's FireWire connection).

Consult your FireWire disk drive documentation for more information.

This section contains the following subsections:

- Mounting the FS-4 (Windows)
- Using Avid OMF Clips (FS-4Pro only)
- Dismounting the FS-4 (Windows)
- Mounting the FS-4 (Macintosh)
- Dismounting the FS-4 (Macintosh)



## Mounting the FS-4 (Windows)

Use this procedure for Windows XP, 2000, 98SE and ME.

- Step 1: On a Windows-based computer system, double click the My Computer icon on the top left hand corner of the desktop. You will see a window similar to the following:



- Step 2: Locate the FS-4. It appears as a standard FireWire disk drive. It will probably be labeled E:, F:, G:, and so on. (drive C: is usually your computer's main disk drive). Once you have identified it, double click on the FS-4.
- Step 3: Once you have located your FS-4, double click the disk icon to open it up. Once opened, open the folder with the most recent date code (for example, "20050127-110345-01") and you will see a window similar to the following:



**NOTE:** On the FS-4Pro, if you have assigned clips to a Reel folder, open that particular folder to locate your clips.

The FireWire disk drive contains several different files. Clips can appear as:

- RawDV (.dv)
- AVI Type 1 - (YYYYMMDDHHMMSSa01)
- AVI Type 2 or 24p AVI Type 2 - (YYYYMMDDHHMMSSb01)
- Canopus AVI - (YYYYMMDD-HHMMSSb01)
- Matrox AVI - (YYYYMMDD-HHMMSSm01 with a separate .wav audio file per track)
- **FS-4Pro only.** Pinnacle AVI - (YYYYMMDD-HHMMSSp01 with two separate .wav audio files per track)
- QuickTime or 24p Quicktime (.mov)
- **FS-4Pro only.** Avid OMF (.omf with two separate .aif audio files per track).

The FAT32 file system is limited to a 2GB file size. This equates to roughly 9 minutes of recording time.

When clips are being recorded to the FS-4 that exceed 9 minutes in length, the FS-4 automatically creates a new file without dropping any frames.

The two clips have the same primary file name, however, the last two digits are different.

The first 2GB part of the clip is labeled with “-01” after the primary file name.

The second 2GB segment is labeled with a “-02”. Additional 2GB segments are labeled with a “-0X” number.

With most NLE systems on a Windows computer, you can use clips within the timeline by selecting the clips on the source volume (the connected FS-4) and importing them directly into the NLE's bin.

Clips can then be immediately used in the NLE's timeline.

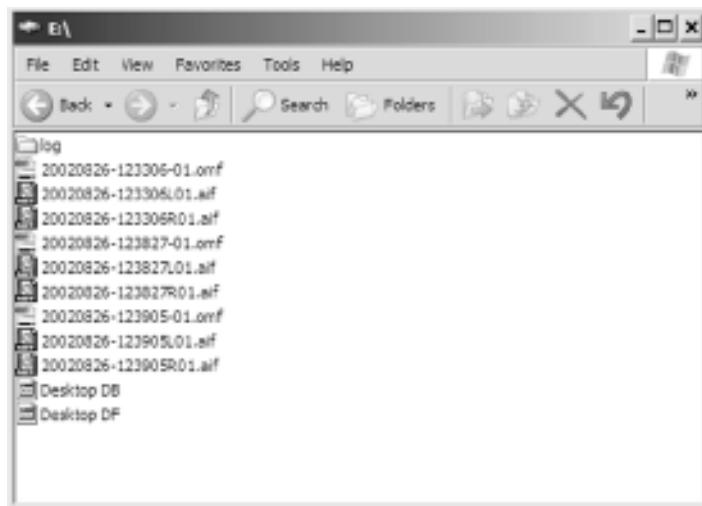
With FS-4, the drive itself is fast enough to directly stream the clips to the NLE, eliminating the need to copy or transfer the clips before use.

When utilizing the Avid OMF file format, you must use the steps in the following section to import clips.

## Using Avid OMF Clips (FS-4Pro only)

The Avid DV OMF file format was developed for use with Avid editing products on Windows 2000, Windows XP or Mac OS X. These products include Avid Xpress Pro, NewsCutter, and Media Composer Adrenaline (with the DV option).

The Avid DV OMF file format creates three files simultaneously; an OMF video file and two separate AIF audio files. On the computer's desktop, the files appear similar to the one shown below.



On the FS-4, the video file (OMF) and the audio files (AIF) appear as one track.

If you delete an Avid DV OMF file, the FS-4 deletes the audio and video portions at the same time.

In order to use the FS-4 recorded Avid DV OMF files on your Avid NLE system, use the following procedure.

- Step 1: Locate the FS-4 on your computer.
- Step 2: Open the FS-4 drive when you have found it, and create a new folder named "OMFI MediaFiles".  
To do this on Windows, select **File>New>Folder** from the pull down menu.

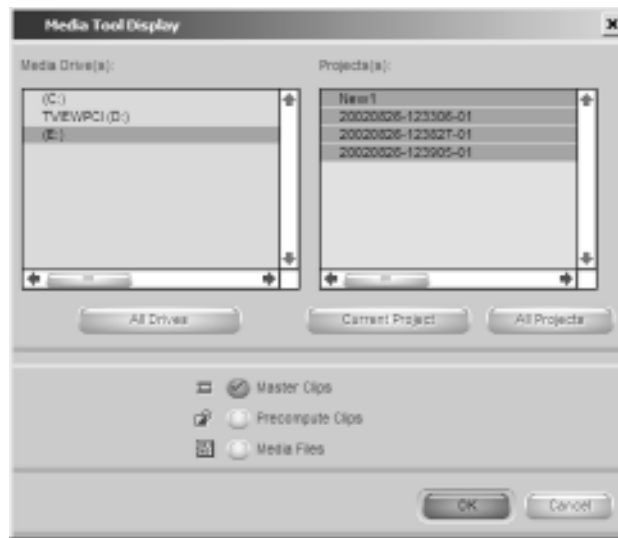
On the Macintosh, select **File>New Folder**. You must type "OMFI MediaFiles" correctly in order for Avid to see the disk drive.

Step 3: Drag all the OMF and AIF files into the new folder (do not drag in the files titled Desktop DB or Desktop DF).

**NOTE:** if you are using the ORGANIZE OMF function on the FS-4 prior to using the disk on a computer, step 2 and 3 are not necessary.

Step 4: Launch Avid.

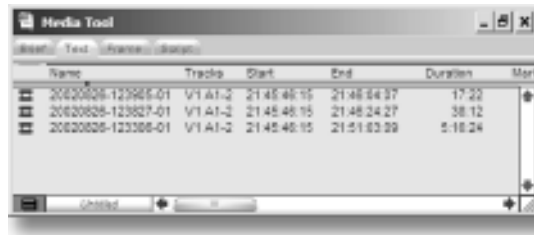
Step 5: Once you have opened the desired project or created a new project, select **Tools>MediaTool**. A screen similar to the following appears:



Step 6: Locate and select the FS-4 under Media Drive(s).

**NOTE:** If the drive does not appear, check to make sure you have created the OMFI MediaFiles folder correctly with proper case and spacing. Also, check to see that the drive is properly connected and recognized by the computer). Under Project(s), select All Projects (This highlights all items in the Project(s) window).

Step 7: Make sure Master Clips is checked and press **OK**. The Media Tools Window similar to the following appears:



Step 8: Create a new bin (select **File -> New Bin**) or open an existing bin in Avid.

Step 9: Once opened, select all items in the Media Tools window (select **Edit> Select All**).

Step 10: Drag the contents of the Media Tools Window into the bin. It is now possible to use these clips in the Avid timeline.

## Dismounting the FS-4 (Windows)

Once you have completed working with the FS-4 on a Windows XP, Windows 2000, Windows 98SE or Windows ME computer system, you must dismount the drive before unplugging it.

To do this, use the following procedure:

Step 1: Click the Stop Device icon at the bottom right side of the Windows task bar as shown below.



Step 2: Once clicked, your computer system prompts you to "STOP" the connected FS-4. This begins the dismount process.

Step 3: Select the message by clicking on it. The computer will now dismount the FS-4 and notify you when it is safe to remove the volume.

## Mounting the FS-4 (Macintosh)

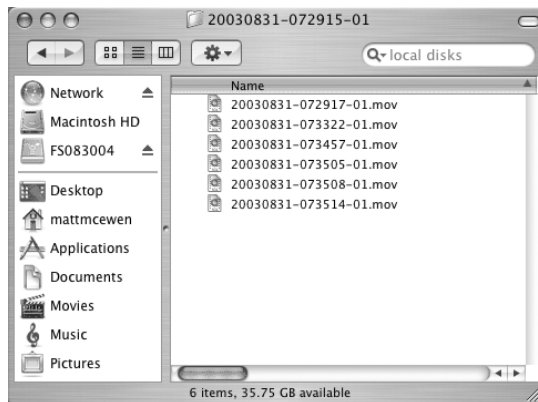
Step 1: On a Macintosh, start your computer and connect your FS-4 to the computer utilizing a standard 6-pin to 6-pin FireWire cable.

When mounted, your FS-4 should appear on the computer's desktop as shown below:



The FS-4 appears as a FAT32 volume with a PC label. This is not always the case on Mac OSX however.

Step 2: Once you have located your FS-4 on the desktop, double click the disk icon to open it up. Once opened, open the folder with the most recent date code (for example, "20050127-110345-01") and you will see a window similar to the following:



**NOTE:** On the FS-4Pro, if you have assigned clips to a Reel folder, open that particular folder to locate your clips).

## Dismounting the FS-4 (Macintosh)

Once you have completed working with your FS-4 on a Macintosh computer system, you must dismount the drive before unplugging it.

Do this as follows:

- Step 1: Select the FS-4 on the computer's desktop. It is marked with a PC symbol.
- Step 2: Drag the drive into the trash or use the eject button. This dismounts the particular disk drive.

## Transferring Clips to Your NLE System

To perform this task, find the FS-4 drive on your computer desk top and copy the clips into the selected folder on your computer.

## Charging the Battery

The battery begins charging anytime it is connected to AC power using the AC adapter supplied with the FS-4. The charge LED lights when the FS-4 is charging. For information on the charge LED, refer to the subsection "Top Panel" on page 7

**NOTE:** The FS-4 can be charged through the FireWire port under some circumstances.

## Battery Use Warnings

Batteries can cause property damage and/or bodily injury such as burns if a conductive material such as jewelry, keys, or beaded chains touch exposed terminals. The conductive material may complete an electrical circuit (short circuit) and become quite hot. Exercise care in handling a charged battery, particularly when placing it inside a pocket, purse, or other container with metal objects.

**NOTE:** Use only FOCUS Enhancements original battery chargers.

## Mounting to a Camcorder

Mount the FS-4 to your camcorder using the optional Camcorder Mount Kit (P/N ASYF-0849-01). Contact FOCUS Enhancements for more information and to order this kit.

## Belt Mounting

A belt mount clip is included with the FS-4. This mount is similar to those used with cellular telephones. Attach the belt mount to the belt clip post on the rear of the FS-4 and push it down to lock it in position. The belt clip can ratchet to various positions when attached to a belt.

## FireStore Functions

FS-4 screens are organized in a flat hierarchy. Every screen has a unique name, and you can cycle continuously through the screens using the **Left** and **Right** Navigation Keys.

Use the **Up** and **Down** Navigation Keys to cycle through screen selections.

Use the **Select** Navigation Key to make a choice.

**NOTE:** When you navigate through the LCD Screens and scroll down into the menu, you can press the **Left** navigation key on the front panel and immediately return to the top of the Screen so you can navigate to the other screens. To return immediately to the Home Screen, press the **Select** key.

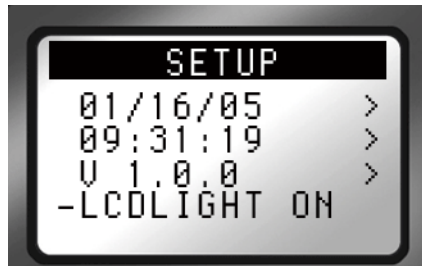
This section contains information on the following screens:

- “General Screen Information” on page 29
- “Record Screen” on page 31
- “HDD Mode Screen” on page 34
- “DV Format Screen” on page 36
- “Setup Screen” on page 37
- “Functions Screen” on page 42
- “Utilities Screen” on page 45
- “Control Screen” on page 53



## General Screen Information

Use the following information to get acquainted with the screens and their displays.



### Screen Name:

← When the Cursor is on the title (screen name), the title appears in inversed text. Press the **Left** or **Right** Navigation Key to move to the previous or next screen. Use the **Select** key to jump to the HOME screen.

### Screen Values:

When the Cursor row is on a value, the option is inversed. Use the **Up** or **Down** Navigation key to cycle through the values, including the screen name. Values may be one time selectable, selectable among groups, or navigable to another screen as indicated by ">".

The FS-4 screens are organized by function. Each screen contains a list of options. An option can be:

- A setting that is inclusive of other options currently shown (like a check box)
- A setting that is exclusive of other options that are grouped with it (like a radio button)
- A link to a secondary function screen

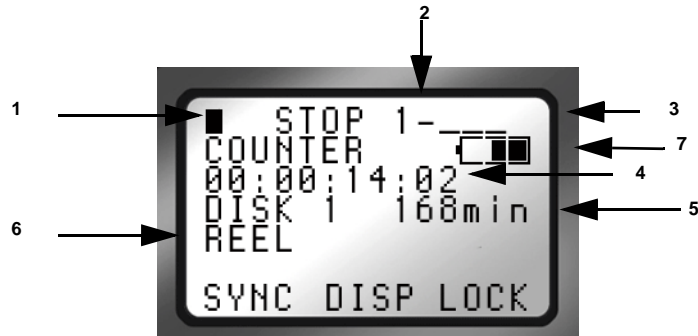
## Welcome Screen

The Welcome Screen appears briefly after boot-up, and automatically switches to the Home Screen when the FS-4 is ready for operation.



## Home Screen

The HOME screen is read only and cannot be navigated. The only way off the HOME screen is by using the **Left** or **Right** Navigation Key.



1 - Current function (Symbol and Descriptions) - Refer to "Physical Description and Basic Controls" on page 4.

2 - Volume Disk number. Volume number is always "1" unless multiple FS-4's are connected.

3 - Clip Number, for example, 001 (Clip 1).

4 - Timecode Value - 00:00:00:00 (Drop Frame), or 00;00;00;00 (Non Drop Frame)

5 - Time remaining on the disk.

6 - **FS-4Pro Only:** Reel Display - In RECORD or PLAYBACK modes, this selection displays the particular REEL a clip is in or has been marked to, If in PLAY FROM -> REAL LIST mode, REEL appears in brackets for example, "<REEL>". If no REEL has yet been selected, this area is blank.

7 - Battery life gauge.

## Information Screens

An information screen is generated automatically by an event as shown in the following example screen.

Press **BACK** to clear the screen and return to the last screen.

FS-4 information screens indicate conditions such as high temperature, power remaining, or drive capacity remaining.



## Record Screen

On the FS-4, the only two choices in the RECORD MENU are NORMAL and RETRO CACHE. It is not possible to set a RETRO CACHE time value, by default, set at 6 seconds. You can only either enable or disable it.

The **FS-4Pro** includes all the items in the RECORD MENU explained below.



- Step 1: Use the **Up** and **Down** Navigation Keys to move up and down among the selections and the title.
- Step 2: For Retro Disk, Retro Cache, Loop Record, and Time Lapse, use the **Right** Navigation key to display a sub screen. The Sub Screen can be displayed even if a value is unselected.
- When you make a selection, it is marked with a “-” to the left of the selection.
  - Once you select a particular mode in the Record menu, the FS-4 remains in that mode until you select a different mode. When you exit to the Home screen, the newly selected mode is active. The top left hand of the Home screen displays the corresponding RECORD mode.

### **Normal Record**

This is the Standard record mode. All control is from the FS-4 front panel. When you press REC, the FS-4 begins standard recording. Pressing REC once puts the FS-4 into REC PAUSE mode. Pressing it a second time puts the FS-4 into RECORD mode.

### **Retro Disk Record Mode (FS-4Pro Only)**

Step 1: Press the **Left** Navigation key to display the Retro Disk screen.



Step 2: Use the **Left** and **Right** navigation keys to sequence through HH and MM.

Step 3: Use the **Up** and **Down** navigation keys to increment and decrement values. This value is automatically limited to the maximum remaining disk duration.

Step 4: Adjust the minutes and hours value between 0 and 59.

Step 5: Select BACK to return to the RECORD Screen with the current cursor row set to the RETRO DISK value.

The "HH:MM" row is for display only.

RETRO DISK records the video signal over itself in a continuous loop. RETRO DISK always keeps at least the amount of time that you select in a series of one-minute clips.

**NOTE:** In order to function correctly, the FS-4 must always have at least one minute of disk space (under 60 minutes) or 9 minutes, 13 seconds of disk space (when RETRO DISK value is set to greater than 60 minutes) remaining in addition to the set RETRO DISK value. For instance, it is not possible to set a RETRO DISK value of one minute if only one minute of disk space remains.

- Once the RETRO DISK time is set, An "L" appears next to the record symbol on the FS-4's display and also in the camcorder's viewfinder.

- You can use RETRO DISK in LOCAL, and SLAVE RECORD control modes.

### ***Retro Cache Record Mode***

**NOTE:** You can only set RETRO CACHE in the FS-4Pro. On the FS-4, it is either on (set by default to six seconds) or off.

Step 1: Use the **Right** Navigation key to display the Retro CACHE screen.



Step 2: Use the **Up** and **Down** navigation keys to increment and decrement values. This value is automatically limited to a maximum of 10. Tens and ones digits are set separately.

Step 3: Press BACK to return to the RECORD Screen with the current cursor row set to the RETRO CACHE value.

- The “:SS” row is for display only.
- RETRO CACHE RECORD can be used in LOCAL, SYNCRO RECORD and SLAVE RECORD control modes.

### ***Loop Record (FS-4Pro only)***

LOOP RECORD is similar to RETRO DISK.

When you select LOOP RECORD, and press REC, video is recorded to available disk space. Clips are recorded to disk continuously as one-minute clips (up to 60 minutes - over 60 minutes, 2GB files). When the capacity of the disk is reached in LOOP RECORD, an additional one-minute (or 2GB) segment is created (The FS-4 always has at least 2GB of space in reserve on disk to carry out this function.). After this clip is complete, the oldest one-minute clip (or 2GB segment) is recorded over, followed by each sequential oldest clip. When you press STOP during a record session, REC stops and clips in the current LOOP RECORD session are saved to disk. They are also saved in a single folder.

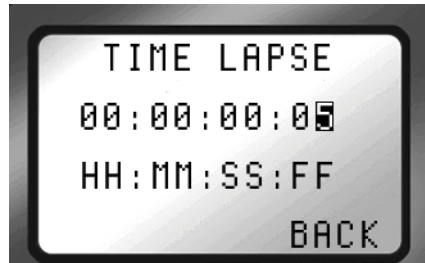
### **Snap** (FS-4Pro only)

When you select SNAP and press REC, a single frame is grabbed. SNAP can be used with LOCAL and SYNCRO RECORD control modes. If SNAP is the RECORD MODE when you turn off the power or power is interrupted, upon re-boot, the FS-4 will be in NORMAL REC mode.

### **Time Lapse** (FS-4Pro only)

You can select an interval of up to twenty-four hours. The interval is the period of time between the FS-4 capture of a single frame of video (a value of 00:00:00:00 means no frames will be recorded).

Step 1: Press the **Right** Navigation key from the Record Screen to display the TIME LAPSE screen.



Step 2: Use the **Left** and **Right** navigation keys to sequence through HH:MM:SS:FF.

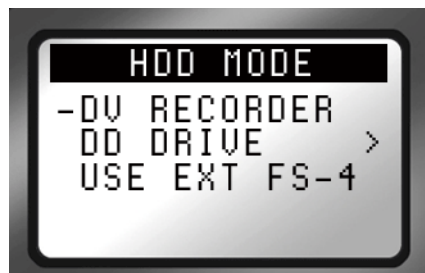
Step 3: Use the **Up** and **Down** navigation keys to increment and decrement values. The value is automatically limited to 24 hours.

Step 4: Use BACK to return to the RECORD Screen with the current cursor row set to TIME LAPSE value.

The "HH:MM:SS:FF" row is for display only.

## **HDD Mode Screen**

Value selections on this screen are mutually exclusive.



### ***DV Recorder***

When you make this selection, the FS-4 functions as a DV Recorder, and expects I/O DV data from the camera FireWire connector.

### ***DD Drive***

When you make this selection, the FS-4 functions as a Volume, and mounts to a host computer using the computer FireWire connector. In this mode, you can also connect multiple FS-4 units together.

### ***Use External FS-4***

This setting allows you to connect two FS-4 units together for long record times. One unit acts as the master, the second unit acts as a slave. When the master FS-4 is full, it begins recording on the slave FS-4 unit.

**NOTE:** When you connect two FS-4 units together as described above and the FS-4 is in Record or Playback mode, when the master unit is being recorded to/played back from, the volume display shows a 1-XXX on the home screen. When the slave unit is being recorded to / played back from, the volume display shows 2-XXX on the home screen

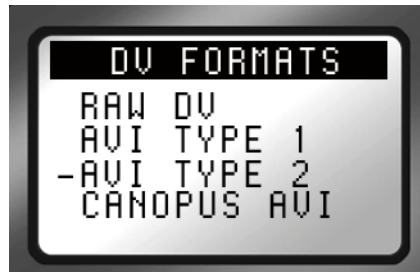
Use this function as follows:

- Step 1: Connect a camcorder to the desired master FS-4 using the supplied FireWire cable.
- Step 2: Power on FS-4 and navigate to the HDD Mode menu screen and enable USE EXT FS-4 on the master unit.
- Step 3: On the desired slave FS-4, power the unit on and navigate to the HDD Mode menu screen and enable DD DRIVE on the slave unit.
- Step 4: Using a 6-pin to 6-pin FireWire cable, connect between the two units' Computer I/O connectors.
- Step 5: Begin recording or playback using the master FS-4.

**NOTE:** It is important to take the master FS-4 out of USE EXT FS-4 mode before attempting to connect to a computer. Use the standard DD DRIVE mode to do this.

## DV Format Screen

Use the **Up** and **Down** navigation keys to make a selection. When you select the options on this screen, the value is marked with a “-”.



Possible values include:

- RAW DV
- AVI TYPE 1
- AVI TYPE 2
- CANOPUS AVI
- MATROX AVI
- QUICKTIME
- AVID OMF (FS-4Pro only)
- QUICKTIME 24P/25P
- AVI TYPE 2 24P/25P
- PINNACLE AVI (FS-4Pro only)

**NOTE:** When using AVID OMF or PINNACLE AVI formats, you must use the organize PINN or Organize OMF function in the Utilities Menu. Refer to the section, “Utilities Screen” on page 45.

The latest DTE supported applications and what file formats to use for each is listed on the FOCUS Enhancements website. Check regularly for updates.



## Setup Screen

Unlike other screens, selections on the Setup Screen are in mutually exclusive groups, or in some cases, making a selection takes you to a settings screen from which the only path back is the BACK key.



The values for this screen include:

- DATE (Displayed) >
- TIME (Displayed) >
- VERSION (Displayed) >
- LCDLIGHT ON
- LCDLIGHT OFF
- LCDLIGHT AUTO; Group Default
- ALARM ON; Group Default
- ALARM OFF
- STOP FRAME; (1st frame of current clip) Group Default
- STOP GREY
- STOP NO VIDEO
- EXT CTL OFF; Group Default
- EXT CTL PLAY
- EXT CTL FRAME
- EXT CTL FILE
- TC EXT; Group Default
- TC REC RUN
- TC FREE RUN (FS-4Pro only)
- TC REGEN (FS-4Pro only)
- TC SET >
- UB SET > FS-4Pro only
- TC DROP - NTSC only.
- TC NON-DROP; Group Default - - NTSC only.
- LCD CONTRAST

### **DATE**

When you make this selection, the SET DATE screen appears for setting the date.



Refer to the section, "Set the Time and Date" on page 14.

### **TIME**

When you make this selection, the SET TIME screen appears for setting the time.



Refer to the section, "Set the Time and Date" on page 14.

### **VERSION**

When you make this selection, the VERSION screen appears, and the screen displays the product ID in detailed form.



- Use BACK to return to the SETUP Screen with the current cursor row set to VERSION value.

### ***LCDLIGHT (GROUP)***

Value selections on this screen consist of the following: LCDLIGHT ON, LCDLIGHT OFF, LCDLIGHT AUTO (Default)

This group allows you to enable or disable the FS-4's LCD's backlight. Do this as follows:

- Step 1: Make an LCD selection. The highlighted state is current after you exit.
- Step 2: Press BACK to exit to the menu screen.
- The LCDLIGHT ON setting keeps the backlight on permanently.
  - The LCDLIGHT OFF setting keeps the backlight off permanently.
  - LCDLIGHT AUTO turns off the backlight after one minute.

In LCDLIGHT AUTO mode:

- Pressing any keypad key on the FS-4 turns the backlight back on (But will not carry out the function until pressed again with the back light on).
- Any INFORMATION screen turns the backlight on.

### ***ALARM (GROUP)***

Selections consist of the following: ALARM ON (Default) and ALARM OFF. Upon selection, the value is marked with a "- ". The alarm alerts you for conditions such as low battery charge, low disk space, or over heating of the FS-4, as well as the button feedback indicator.

### ***STOP (GROUP)***

Selections consist of the following: STOP FRAME (Default), STOP GREY, and STOP NO VIDEO.

- When you select STOP FRAME, the first frame of the clip is displayed.
- When you select STOP GREY, a grey frame is displayed
- When you select STOP NO VIDEO, video output is off.

### ***EXT (GROUP)***

Selections consist of the following: EXT CTL OFF (default), EXT CTL PLAY, EXT CTL SNAP, and EXT CTL FILE.

- EXT CTL OFF allows you to connect a 3.5mm-to-DB9 cable to the GPI port and control the FS-4 using an RS232C cable from an external device. You can also use the FS-4 with the optional wired remote control unit.

The remaining three selections allow functions to occur from a simple contact closure.

- EXT CTL PLAY allows control of pause and unpause during a record or playback session.
- EXT CTL FILE allows a new file to be created during a record session without losing any frames.
- EXT CTL SNAP allows a single frame of video to be recorded to a file. Each sequential use in this mode adds another frame to the same file until stopped.

### ***TIME CODE (GROUP)***

Selections consist of the following: TC EXT (Group Default), TC RECRUN, TC FREE RUN (FS-4Pro ONLY), TC REGEN (FS-4Pro only),.

In TC EXT mode (**FS-4Pro only**), the incoming timecode source is recorded. If the TC is not running, and the FS-4 is recording, the same TC number will be in each recorded frame. Choose TC EXT mode to clear any stored number.

In TC REC RUN mode, the FS-4 does the following:

- The last timecode number recorded + 1 is used as the timecode number for the first frame of the next recording.
- The number entered by a setting in the TC PRESET menu is used for the first frame of the next recording.
- The last number used is stored in the memory, so this mode persists across recording sessions.

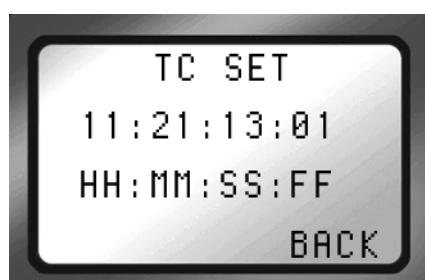
When you enable FREE INT mode, the FS-4 begins counting from the value stored. When you use the TC PRESET function, when the number is entered and the TC PRESET menu is exited, the FS-4 begins counting.

**NOTE:** When you set the camcorder Timecode mode to REC RUN, REGEN or EXT TC, the FS-4 will NOT record the timecode when recording to disk only. Use the FS-4 TC modes if you want any of these TC modes.

#### **TC SET (or TC / UB SET - FS-4PRO only)**

This group allows you to enable or disable the FS-4's time code (TC).

Step 1: Select TC SET.



Step 2: Use the **Left** and **Right** navigation keys to sequence through hours, minutes, seconds, and frame. Use the **Up** and **Down** navigation keys to increment and decrement values.

Step 3: Press BACK to return to the SETUP Screen with the current cursor row set to TC SET value.

- The "HH/MM/SS/FF" row is for display only.
- **On the FS-4Pro only**, you can set either a TC value or a User bit value. The selected mode (TC or UB) is the currently set mode. Move between modes by pressing the **Left** or **Right** navigation keys. The LCD updates accordingly. In UB mode, the HH/MM/SS/FF disappears and so do the colons between the values.

#### ***DROP (GROUP) - NTSC versions only***

Selections consist of the following: TC DROP and TC NON-DROP (Group Default). Upon selection, the value is marked with a "- "

#### ***LCD CONTRAST***

Step 1: Press the **Right** navigation key to go to the submenu.

Step 2: Use the **Up** and **Down** navigation key to increment and decrement the value. The LCD contrast changes according the value.

## Functions Screen

On the Home screen shown below, you can assign the Function keys, FA, FB, FC to toggle specific system settings.



These values are user-assignable in the Functions screen. Changing a setting with a Function key has a result identical to changing the setting in its corresponding menu. These have “last entry” priority. so changing a setting using a Function key, or changing it using the corresponding menu updates both screens. Functions are intended to be convenient Home screen shortcuts.



Selections on the Functions screen are in three groups, FA, FB, and FC. In each group selections are mutually exclusive, but there is no interaction between function groups.

Use the following table for the Function key menu. The default is listed first.

MENU	Appears on LCD as...
FA SYNC	SYNC (Toggles between SYNCRO and NORMAL record control) (default)
FA AV/C	AV/C (Toggles between AV/C and NORMAL control)
FA TAPELESS	TAPE (Toggles between TAPELESS TRIGGER and NORMAL control)
FA REEL1	R1 (Marks Clip to Reel 1) <b>FS-4Pro only</b>

FA REEL2	R2 (Marks Clip to Reel 2) <b>FS-4Pro only</b>
FA REEL3	R3 (Marks Clip to Reel 3) <b>FS-4Pro only</b>
FA REEL4	R4 (Marks Clip to Reel 4) <b>FS-4Pro only</b>
FA REEL5	R5 (Marks Clip to Reel 5) <b>FS-4Pro only</b>
FA REEL6	R6 (Marks Clip to Reel 6) <b>FS-4Pro only</b>
FA REEL7	R7 (Marks Clip to Reel 7) <b>FS-4Pro only</b>
FA REEL8	R8 (Marks Clip to Reel 8) <b>FS-4Pro only</b>
FA REEL9	R9 (Marks Clip to Reel 9) <b>FS-4Pro only</b>
FA REEL10	R10 (Marks Clip to Reel 10) <b>FS-4Pro only</b>
FA LCDON	LCD1 (LCD On/Off Toggle)
FA LCDAU	LCDA (LCD Auto On/On Toggle)
FA BLANK	No Function.
FB DISP	DISP (Toggles the different TC display modes) (Default)
FB ALARM	Turns the FS-4 alarm on or off.
FB FILE	FILE (Toggles between normal and display of the file name)
FB REEL1	R1 (Marks Clip to Reel 1) <b>FS-4Pro only</b>
FB REEL2	R2 (Marks Clip to Reel 2) <b>FS-4Pro only</b>
FB REEL3	R3 (Marks Clip to Reel 3) <b>FS-4Pro only</b>
FB REEL4	R4 (Marks Clip to Reel 4) <b>FS-4Pro only</b>
FB REEL5	R5 (Marks Clip to Reel 5) <b>FS-4Pro only</b>
FB REEL6	R6 (Marks Clip to Reel 6) <b>FS-4Pro only</b>
FB REEL7	R7 (Marks Clip to Reel 7) <b>FS-4Pro only</b>
FB REEL8	R8 (Marks Clip to Reel 8) <b>FS-4Pro only</b>
FB REEL9	R9 (Marks Clip to Reel 9) <b>FS-4Pro only</b>
FB REEL10	R10 (Marks Clip to Reel 10) <b>FS-4Pro only</b>
FB BLANK	No Function.
FC LOCK	Locks the keypad (Default) - toggles between LOCK and UNLC <Unlock>
FC DV/HDD	Toggles FS-4 between DV and HDD Modes
FC DD	R1 (Marks Clip to Reel 1) <b>FS-4Pro only</b>

FC REEL2	R2 (Marks Clip to Reel 2) <b>FS-4Pro only</b>
FC REEL3	R3 (Marks Clip to Reel 3) <b>FS-4Pro only</b>
FC REEL4	R4 (Marks Clip to Reel 4) <b>FS-4Pro only</b>
FC REEL5	R5 (Marks Clip to Reel 5) <b>FS-4Pro only</b>
FC REEL6	R6 (Marks Clip to Reel 6) <b>FS-4Pro only</b>
FC REEL7	R7 (Marks Clip to Reel 7) <b>FS-4Pro only</b>
FC REEL8	R8 (Marks Clip to Reel 8) <b>FS-4Pro only</b>
FC REEL9	R9 (Marks Clip to Reel 9) <b>FS-4Pro only</b>
FC REEL10	R10 (Marks Clip to Reel 10) <b>FS-4Pro only</b>
FC BLANK	No Function.

### Function Selection Operation from Home Screen:

Press the function to sequence through all possible selections of the assigned group's values. For example if you selected FA REELS, pressing the Function A key would cycle and display R1-R2-R3-R4-R5-R6-R7-R8-R9, and so on.

The following operations are the same for either A, B, and C Function operation:

### BLANK

For this selection, nothing is displayed above the function key on the HOME Screen. Pressing the corresponding Function key has no effect.

The illustration below shows an example of the Home Screen with functions assigned:





## Utilities Screen

This menu allows you to access the FS-4 UTILITIES modes as follows:

- Step 1: Select the Menu Item using the **Up** and **Down** navigation keys.
- Step 2: Press **Select** to open the sub menu (where applicable).



Values include:

- ORGANIZE REEL (**FS-4Pro only**)
- ORGANIZE OMF (**FS-4Pro only**)
- ORGANIZE PINNACLE (**FS-4Pro only**)
- DELETE CLIP >
- FORMAT >
- REPAIR DISK >
- REPAIR CLIP >
- FILE NAME >
- UPGRADE >
- SYSTEM RESET >
- STATUS >

### **ORGANIZE REEL** (FS-4Pro Only)

This selection places all file identified as a REEL clip during recording or playback into the appropriate reel folder. You can import this folder directly into most DV NLE bins.

### **ORGANIZE OMF** (FS-4Pro Only)

When files are recorded in the AVID OMF file format, this selection allows you to take all the OMF and AIF audio files at the end of a recording session and place them into a folder on the disk drive named *OMF MediaFiles*. When the disk is connected to a computer, this folder is recognized by Avid Xpress DV's Media Tool enabling direct import of files into the Avid timeline. Refer to the section, "Using Avid OMF Clips (FS-4Pro only)" on page 23 for more information.

### **ORGANIZE PINNACLE** (FS-4Pro Only)

This selection organizes clips for use with Pinnacle Liquid series NLE systems. Products such as the Pinnacle AVI file format were created for use with products such as Pinnacle Liquid Edition. The Pinnacle AVI file format creates three files simultaneously during a recording; an AVI video file and two separate WAV audio files labeled as left and right. An additional *Edition.ale* file for each recording session is also created which contains timecode data. This file must be kept with the media.

Once clips have been imported into Liquid Edition, an Index file is created on the disk drive for each clip. Do not delete this file since it is required to continue work in the particular project.

### **DELETE CLIP**

This selection deletes a selected clip.

Step 1: From the Utilities screen, use the **Down** navigation key to move the cursor to DELETE CLIP. The row appears as inversed text.

Step 2: Press **Select**. The following screen appears.



Step 3: Use the **Left** and **Right** navigation keys to sequence through clip digits. Use the **Up** and **Down** navigation keys to increment and decrement digit values.

Step 4: When you select YES, the following occurs:

- The selected clip is deleted.
- The cursor is set to the ones digit.

Step 5: Press BACK to return to the Utility Screen.

Once you delete a clip, the FS-4 displays a re-organized clip number sequence. For instance, if there are three clips on the disk (1-001, 1-002, 1-003) and you delete clip 1-002, after deletion is complete, clip 1-003 becomes clip 1-002. However, base file names are not affected.

## FORMAT DISK

FOCUS Enhancements recommends that the FS-4 is formatted after each recording to prevent lost frames due to fragmentation.

**NOTE:** FORMATTING WILL ERASE ALL DATA ON DISK! Back up or transfer any files or clips on the FS-4 before selecting a format.

This selection formats the disk as follows:

- Step 1: From the Utilities screen, use the **Down** navigation key to move the cursor to Format Disk. The row appears as inversed text.
- Step 2: Press **Select**. The following screen appears.



- Step 3: Select YES to begin formatting and a status screen appears.  
Upon complete or error, the screen displays a completion message. The message will be either "Aborted," or "Complete."
- Step 4: Select BACK to return to the Setup Screen with the current cursor row set to FORMAT DISK.

## REPAIR DISK

This selection repairs the disk as follows:

- Step 1: From the Utilities screen, use the **Down** navigation key to move the cursor to Repair Disk. The row appears as inversed text.

Step 2: Press **Select**. The following screen appears.



Step 3: Select YES and the FS-4 begins repairing the disk and displays a status screen.

Upon complete or error, the screen displays either "Aborted" or "Complete."

Step 4: Press BACK to return to the Utility Screen with the current cursor row set to REPAIR DISK.

### REPAIR CLIP

This selection repairs a clip that may have errors. Repair clip works as follows:

Step 1: From the Utilities screen, use the **Down** navigation key to move the cursor to Repair Clip. The row appears as inversed text.

Step 2: Press **Select**. The following screen appears.



Step 3: Use the **Left** and **Right** navigation keys to sequence through the clip digits. Use the **Up** and **Down** navigation keys to increment and decrement the digit values.

Step 4: Select YES. The FS-4 begins repairing and displays a status screen.

Upon complete or error, the screen displays either "Aborted" or "Complete."

Step 5: Press BACK to return to the Utility screen with current cursor row set to REPAIR CLIP.

## FILE NAME

This selection allows you to display (not change) a file name:

- Step 1: From the Utilities screen, use the **Down** navigation key to move the cursor to FILE NAME. The row appears as inversed text.
- Step 2: Press **Select**. The following screen appears.



- Step 3: Use the **Left** and **Right** navigation keys to sequence through clip digits. Use the **Up** and **Down** navigation keys to increment and decrement digit values.
- The base file name is dynamically displayed as a function of the clip number
- When a clip has multiple files, the first Base file name is displayed
- Step 4: Press BACK to return to the Utility screen with the current cursor row set to FILE NAME.

## UPGRADE

To upgrade system software, use the following steps:

- Step 1: Set the FS-4 to HDD Mode and connect it to a computer.
- Step 2: On your computer, rename the XXX.bin file as follows: FS4.bin.
- Step 3: Copy the FS4.bin file to the FS-4 while it is in HDD mode.
- Step 4: Exit the FS-4 from HDD mode and navigate to the Utilities screen.
- Step 5: From the Utilities screen, use the **Down** navigation key to move the cursor to Upgrade. The row appears as inversed text.

**NOTE:** Check the FOCUS Enhancements website for available updates.

Step 6: Press **Select**. The following screen appears.



Step 7: Press **Select** to begin the OS upgrade. The upgrade begins and a status screen appears.

When completed the screen displays either "Aborted" or "Complete"

Step 8: Press **BACK** to return to the Setup screen with the cursor row set to **UPGRADE**.

## SYSTEM RESET

The System Reset feature allows you to restore the factory default settings for your FS-4 unit. This feature is useful for diagnosing problems with your unit.

**NOTE:** A System Reset cannot be reversed!

## STATUS

The FS-4 Status screen provides details of the systems power state as well as internal temperature. This screen may assist FOCUS Enhancements Technical Support in determining power and thermal problems with your unit.

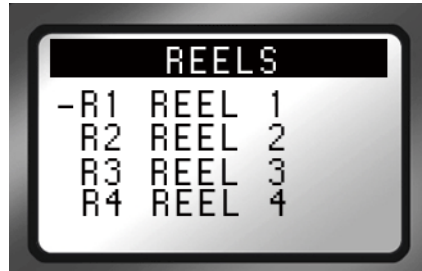
## REELS SCREEN (FS-4Pro only)

When a disk is formatted, the FS-4 creates 10 folders numbered 0-9 on the disk. You can name these folders anything (up to 10 characters) when the FS-4 is mounted to a computer in DD mode. During recording or playback of a particular clip, you can place clips into folders or play from up to 9 different reels.

From the Reels Screen, chose the Reels as follows:

Step 1: From the Utilities screen, use the **Down** navigation key to move the cursor to Reels. The row appears as inversed text.

Step 2: Press **Select**. The following screen appears.



Values include:

- R1 "Reel Name"; Default Value
- R2 through R9 "Reel Name"

Mark a clip to any reel by pressing a key during a recording (in addition to the function keys).

- Upon select, value is marked with a "- "
- Actual reel names are limited to 10 characters

When you use the optional wired remote control, use the keypad numbered 0-9 to directly mark clips. Any additional key presses during a recording or playback, changes the selected folder. Once a session is finished, select ORGANIZE REEL in the utilities folder where the clips are placed in the reel in sequential order.

### PLAY SCREEN

Step 1: From the Utilities screen, use the **Down** navigation key to move the cursor to PLAY. The row appears as inversed text.

Step 2: Press **Select**. The following screen appears.



**Play Clip**

In this mode, the FS-4 plays the selected clip from start to finish when you press the PLAY key. At the end of the particular clip, the FS-4 pauses.

**Play All**

In this mode, the FS-4 plays the entire contents of the disk (all clips) in order from start to finish. At the end of the last clip, the FS-4 pauses.

**Loop Clip**

In this mode, the FS-4 plays the selected clip from start to finish. Immediately after completing the clip, the FS-4 begins playing the clip again without a pause. It stays in this state until stopped.

**Loop All**

In this mode, the FS-4 plays the entire contents of the disk (all clips), in order, from start to finish. At the end of the last clip, the FS-4 begins to play from the beginning of the first clip again without a pause. It stays in this state until stopped.

**Play From Screen (FS-4Pro Only)**

This screen allows you to select from where clips will playback. There are two choices:

- TRACKLIST - clips are played back in the order in which they were recorded (based on the order of the file name).
- REEL - clips in a selected folder are played back. You can choose between any folders on the disk. Each appears with its given folder name (if applicable).



## Control Screen

Use the **Left** or **Right** navigation keys to cycle to the following screen.



Values include:

- LOCAL
- AV/C
- SYNCRO SLAVE
- TAPELESS TRIGGER

### **LOCAL**

Local control mode ignores record triggers from the camcorder and is controlled exclusively from the FS-4 front panel or the optional wired remote control unit.

### **AV/C**

Use AV/C in PLAYBACK mode and other situations where the FS-4 is controlled by an external FireWire device such as a DV NLE system that is not supported by Direct To Edit Technology. In these cases, the FS-4 can be used to capture footage to the NLE with the same behavior as a camcorder.

**NOTE:** AV/C is NOT for use in FS-4 RECORD MODES.

### ***Syncro Slaved***

In SYNCRO SLAVED mode, a camcorder and the FS-4 share the same REC trigger and the FS-4 is slaved to the camcorder. To use this mode, refer to the section, "Syncro Slave Recording" on page 18.

### ***Tapeless Trigger***

The tapeless trigger mode allows the FS-4 to be controlled from a camcorder if it features an external DV control setting separate from the tape transport. Typical camcorders like this include the Sony

DSR-390, DSR-370, DSR-570, Canon XL1s and XL2 and the Panasonic DVX-100/-100A.

## FS-4 LCD Display Modes

The table below shows the different symbols and states displayed on the top line of the LCD when used with different FS-4 control, record, play and stop modes:

<b>PLAY/REC MODE</b>	<b>FS-4 LCD</b>
Stop	STOP
Pause	II PLAY
Play	> PLAY
Rec (Pause)	II REC
Normal Rec (Rec)	REC
Retro Disk (Stop)	L STOP
Retro Disk (Standby)	L REC
Retro Cache (Stop)	C STOP
Retro Cache (Standby)	C REC
Loop Record (Stop)	O STOP
Loop Record (Standby)	O REC
Loop Record (Rec)	O REC
Snap (Stop)	STOP
Snap (Standby)	II SNAP
Snap (Rec)	II SNAP
Time Lapse (Stop)	STOP
Time Lapse (Pause)	II T REC
Time Lapse (Rec) T	REC
<b>CONTROLTYPE</b>	<b>FS-4 LCD</b>
AV/C* (Stop)	A STOP
AV/C* (Rec Pause)	II A <REC TYPE> REC
AV/C* (Rec)	A <REC TYPE> REC
AV/C* (Play Pause)	II A PLAY
AV/C* (Play)	A ALL
Syncro Slave (Pause)	II Y <REC TYPE> REC
Syncro Slave (Rec)	Y <REC TYPE> REC
Tapeless (Pause)	II E <REC TYPE> REC
Tapeless (Rec)	E <REC TYPE> REC

\* AV/C is only for use when the FS-4 is connected to a computer system.

## Technical Specifications

**NOTE:** Specification are subject to change.

### Physical Description

- Dimensions: 1.59" x 5.6" x 3.74" (40mm x 142mm x 95mm) (with normal 90 minute Battery)
- Weight: 1 lb. (.45 kg)

### Input/Outputs

- DV Video I/O - 25Mb/s (1x 6-pin IEEE-1394)
- FireWire Computer I/F - up to 400Mb/s (1 x 6-pin IEEE-1394)
- GPI & RS-232C Control (1 x 3.5mm mini jack)

### Power

- 15V DC, 7.5W
- Mini-jack power connector
- Custom Removable Li-ion Rechargeable Battery Pack (90 minutes estimated run-time)

### Audio/Video/Timecode Specification

- 25Mb/s, 8-bit 4:1:1 (NTSC-DV) or 4:2:0 (PAL-DV) video (model dependent)
- DV Embedded Timecode (Drop or Non-Drop)
- Embedded 2-ch (16-bit, 48kHz) or 4-ch (12-bit, 32kHz) Audio

### DTE File Formats

- RawDV, AVI Type 1, AVI Type 2, Matrox AVI, Canopus AVI, QuickTime, AVI Type 2 24p, QuickTime 24p
- **FS-4Pro Only:** Pinnacle AVI and AVID DV OMF

### Disk Information

- Internal Disk Type: 40GB (or 80GB - **FS-4Pro only**), 5400RPM, 8 MB cache
- Disk Format: FAT32
- FS-4 compatible with Windows 98SE, ME, 2000, XP and Mac OS9/10.

## Log Files

With each recording of a particular clip on a disk, the FS-4 creates a text log file to identify information about the recorded clip and the recording session. Information includes:

- Clip name
- Clip in/out source TC values
- Clip duration
- Clip type (record file type).

The log file also identifies when the shock cache becomes low and when disk or other errors occur during a recording.

## Error Messages

Error messages may appear on the FS-4 LCD display from time to time. The purpose of these messages is to alert you to action that may effect your FS-4 operation. Below is a list of error messages and actions you can take:

Error Message	Description	Action
LOW BATTERY!	Battery power is low.	Connect AC Power or replace the battery pack.
OVER TEMP!	The unit is getting too hot for normal operation.	Make sure the vent and fan intake holes are clear.
NO SPACE LEFT!	The Disk Drive is Full.	Transfer files off the drive and format it before attempting to do more recording.
DISK ERROR XXX	Lost Disk Communication.	Contact FOCUS Enhancements Technical Support.
NO DISK DETECTED	Lost Disk Communication.	Contact FOCUS Enhancements Technical Support.

## Warranty

- 1 year FS-4
- 2 year FS-4Pro
- 90 Days Accessories including the battery.

## **Temperature**

- Operating: 0-40° C (32 - 104° F)
- Operating humidity: 30% to 90% RH
- Storage temperatures: -20 to 60° C (-4° to 140°F)
- Storage humidity: 85% RH or less

## **Compatible Camcorders**

For a list of tested camcorders, refer to [www.focusinfo.com](http://www.focusinfo.com).

## **Optional Accessories**

For a complete list of optional accessories for the FS-4, visit the FOCUS Enhancements website at [www.focusinfo.com](http://www.focusinfo.com).